



## SCIENCE BASED TARGET-SETTING IN THE MARITIME TRANSPORT SECTOR

IN-DEPTH TRAINING WEBINAR

31 January 2023

PARTNER ORGANIZATIONS









IN COLLABORATION WITH



#### **VIDEO-CONFERENCE GUIDELINES**



- This is a zoom webinar. Your camera and microphone are automatically muted.
- Participants can send questions via the Q&A button.
- Please participate in our online polls, launched throughout the webinar.
- Slides from this webinar will be shared after this meeting.
- Please note that this webinar will be recorded for the benefit of those who cannot attend.





### **AGENDA**

- 1. Housekeeping and agenda
- 2. Introduction to the SBTi Maritime Guidance
- 3. Modelling maritime transport SBTs
- 4. Q&A
- 5. Closing

#### **TODAY'S WEBINAR TEAM**





FERNANDO RANGEL VILLASANA **Head of Sector Development** SBTi



JEAN-MARC BONELLO **Principal Consultant** UMAS



ALAN LEWIS

Technical Director

SFC

#### INTRODUCTION TO THE SBTI

What is the Science Based Targets initiative?



DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

The Science Based Targets initiative (SBTi) is a **global body** enabling businesses and financial institutions to set **ambitious emissions reductions** targets in line with **climate science**.

Founding Partners









In collaboration with



#### TECHNICAL GUIDANCE AND TOOL













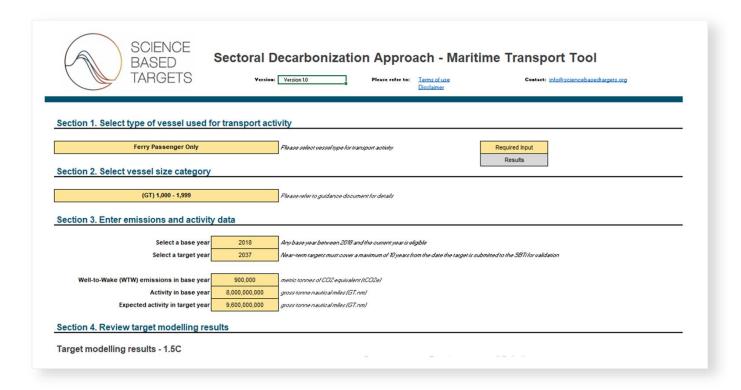
# SCIENCE BASED TARGET SETTING FOR THE MARITIME TRANSPORT SECTOR

in /science-based-targets

☑ info@sciencebasedtargets.org

Version 1.0

November 2022







## THE SBTI MARITIME GUIDANCE

#### THE CHALLENGE

Decarbonizing a critical link of global trade

- 80% of global trade by volume is carried by sea.
- 3% of global GHG emissions (~1GT of CO<sub>2</sub>e).
- Completely reliant on fossil fuels.
- Highly heterogeneous (cargo categories, vessel types, vessel sizes, routes).
- Long asset replacement cycles.





#### WHAT DOES MARITIME TRANSPORT GUIDANCE COVER?



All movement of goods and people on shipping vessels

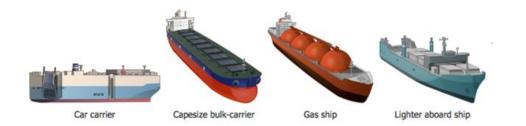


A toolkit to **measure** carbon intensity of activity to **inform** decision-making around short-term **actions** towards a **long-term goal** 

#### **SHIP CATEGORISATION**





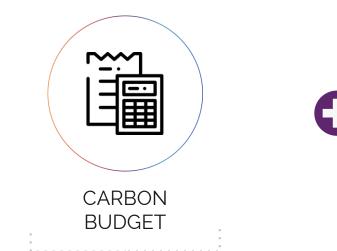


Vessel type	SBTi vessel type
Aggregates Carrier	Bulk carrier
Bulk Carrier	Bulk carrier
Bulk Carrier (with Vehicle Decks)	Bulk carrier
General Cargo/Tanker	General Cargo
Heavy Load Carrier	General Cargo
Heavy Load Carrier, semi submersible	General Cargo
Livestock Carrier	General Cargo

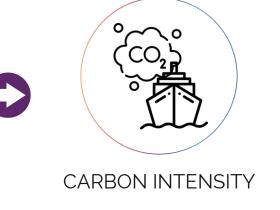
• Comprehensive list provided in Technical Guidance and Tool based on IMO4 categorisation.

#### **PATHWAY DESIGN**

















#### **CARBON BUDGET ALLOCATION**



#### WB2°C

- Carbon budget projection from Energy Technology Perspectives 2017 published by the International Energy Agency.
- Well to wake provided at 5 year intervals.
- Linear interpolation.

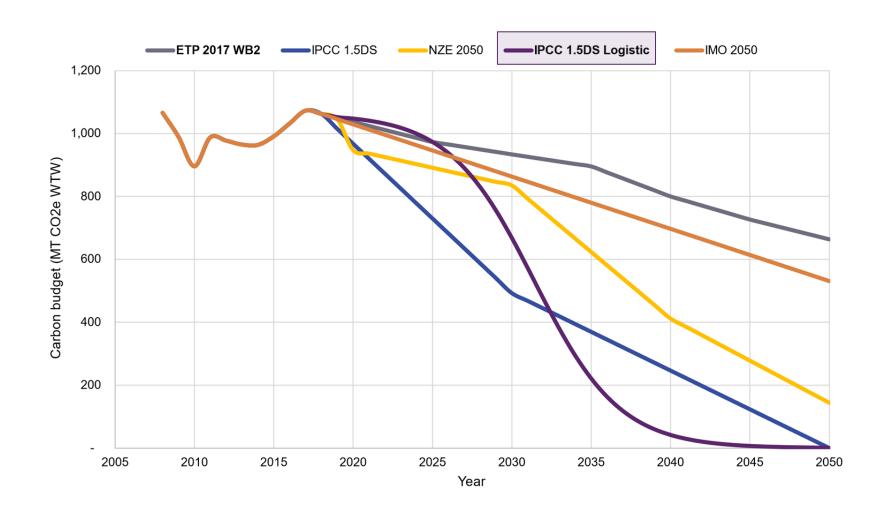
#### 1.5°C

- Establish carbon budget based on IMO4 and IPCC 1.5°C.
- Translate budget from TtW to WtW budget.
- Translate linear assumption to logistics (S-curve).



#### **CARBON BUDGET**





- Well-to-Wake Emissions (Upstream + Operational).
- CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub> (methane).
- IMO curve adapted to include WTT phase.

#### **METRIC**



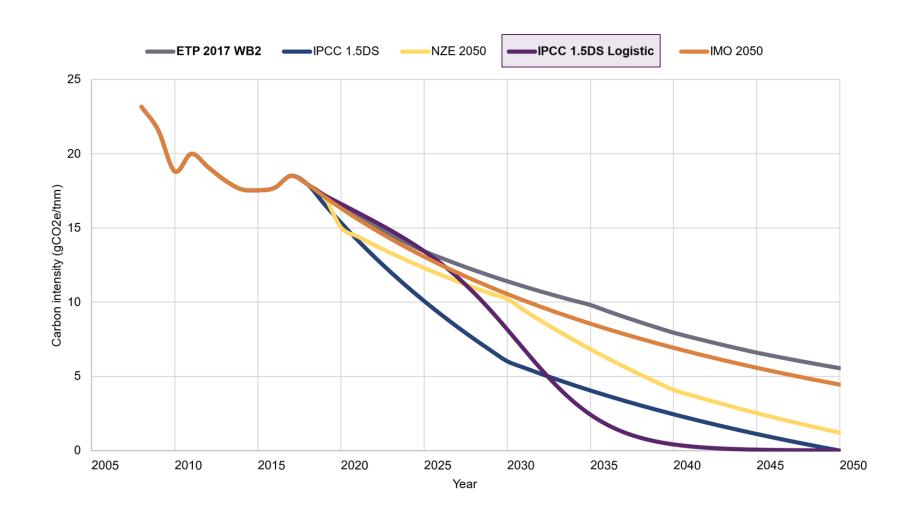
Carbon intensity: 
$$\frac{Total\ emissions}{Transport\ work} = \frac{total\ emissions}{disance\ sailed\ x\ cargo\ carried} = \frac{gCO2eq}{T.nm}$$

Freight vessels: 
$$carbon\ intensity = \frac{gCO2eq}{T.nm}$$

Passenger vessels: carbon intensity = 
$$\frac{gCO2eq}{GT.nm}$$

#### **CARBON INTENSITY**



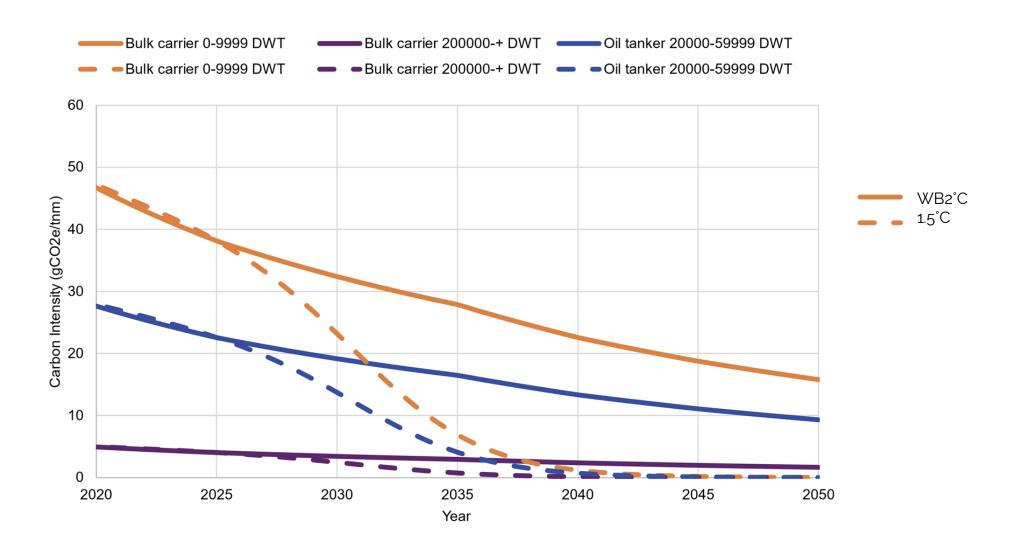


 Metric: gCO<sub>2</sub> / transport work.

#### **CATEGORY SPECIFIC TARGET**

#### Comparing apples with apples





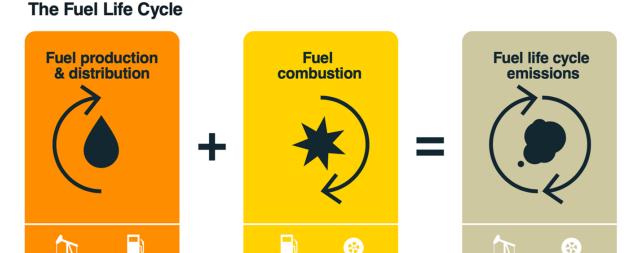
#### **EMISSIONS BOUNDARY**



All targets must cover Well-to-Wake (WTW) emissions (in metric tonnes of CO<sub>2</sub> equivalent (CO<sub>2</sub>e)

WTW emissions are emissions generated across the life cycle of a fuel, from both upstream and operational activities.

They include both Well-to-Tank (WTT) emissions, generated in the fuel's production and distribution, and Tank-to-Wake (TTW) emissions, generated in the combustion of the fuel.



Tank-to-Wheel

Well-to-Tank

© Smart Freight Centre 2019

Well-to-Wheel

#### **TARGET COVERAGE**



Type of shipping related emissions		WTW base year GHG emissions	Base year activity data*	
Vessel owners /	Passenger	Scope 1 Scope 3	tonne-nautical mile	
operators	Freight	Scope 1 Scope 3	tonne-nautical mile	
Cargo shippers /	Passenger	Scope 3 category 6 or 7	tonne-nautical mile	
Logistics Service Providers	Freight	Scope 3 category 4 or 9	tonne-nautical mile	

<sup>\*</sup> Except cruises

#### **SECTOR SPECIFIC REQUIREMENTS\***





 For all companies, near-term target year must be no earlier than 2030.



- Vessel owners or operators must also submit long-term sciencebased targets (net-zero targets) along with their near-term target submission.
- For maritime transport emissions, a long-term science-based target means reducing emissions to a residual level in line with 1.5°C scenarios by no later than 2040.

<sup>\*</sup> In addition to the SBTi general and Net-Zero criteria.





## LIMITATIONS ON FOSSIL FUEL ACTIVITIES

- The SBTi Fossil Fuel Policy affects the extent to which companies engaging in fossil fuel businesses can commit to climate aligned targets.
- Currently the SBTi is unable to accept commitments or validate targets from companies in the oil and gas or fossil fuels sectors.
- Users of the <u>SBTi Maritime Tool</u> with activities related to transportation or extraction of fossil fuel products are advised to **review the current status** of this policy as well as the latest version of the <u>SBTi Criteria</u>.





## **MODELLING TARGETS**

## EXCEL TOOL TO SUPPORT TARGET SETTING FOR THE MARITIME SECTOR

Calculates science-based targets for different vessel types and sizes following the SDA (convergence approach)



One interface for calculating SBTs for all maritime transport categories and one additional (non target setting) feature are included:



Vessel operators can model emission reduction targets for freight and passenger maritime transport activities. Shippers and Logistics Service Providers can also use this tool to model emission reduction targets for scope 3 category 4/9 emissions.

## SBT aggregator ■■

Additional feature to help companies combine targets across multiple maritime transport categories into a single metric.

#### **CONTAINER SHIPPER: DEFAULT**





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

TARGETS Version: Version 1.0 Please refer to: Terms of use Contact: info@sciencebasedtargets.org Disclaimer Section 1. Select type of vessel used for transport activity Container Please select vessel type for transport activity Required Input Results Section 2. Select vessel size category Option for use when Default lease refer to guidance document for details you don't know the vessel size Section 3. Enter emissions and activity data Select a base year 2021 Any base year between 2018 and the current year is eligible When don't know 2033 Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation breakdown: total Select a target year emissions across Well-to-Wake (WTW) emissions in base yea 1,750,000 netric tonnes of CO2 equivalent (tCO2e) whole portfo Activity in base year 168,898,488,121 tonne-nautical mile (t.nm) Based on 40% Expected activity in target year 236,457,883,369 onne-nautical mile (t.nm) growth projection over 12 years

#### TRANSPORT ACTIVITY

SCIENCE BASED TARGETS

- Transport activity: measure of the amount of transport conducted.
  - Calculated by multiplying the amount of goods or number of people by the distance traveled.
- For the purpose of calculating the EEOI, as defined by IMO, this is the actual distance\*.
  - This may need to be converted when generating a corporate inventory.
- Amount of goods is quantified in metric tonnes.
- In the <u>SBTi Maritime Tool</u>, distance is quantified in **nautical miles**.







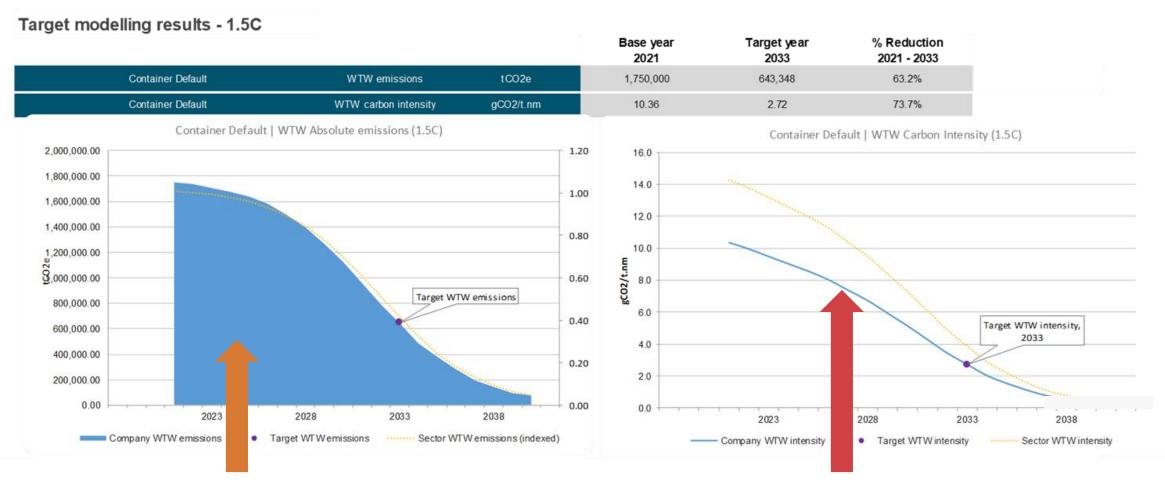
## CALCULATION OF TRANSPORT ACTIVITY

- 20,000 tonnes loaded at Tilbury & transported 1,800 nm to Barcelona.
- 5,000 tonnes unloaded at Barcelona and remaining 15,000 tonnes transported 1,150 nm to Piraeus.
- Total tonne nm = 20,000 x 1,800 + 15,000
   x 1,150 = 53,250,000
- Always break each journey down into constituent parts for the most accurate results.

#### **CONTAINER SHIPPER: DEFAULT**



#### Section 4. Review target modelling results



Total emissions respect company share of total GHG budget

Company S curve less steep than industry average as **have a better-than-average starting point** 

171.058

10,691,144,708

14,967,602,591





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

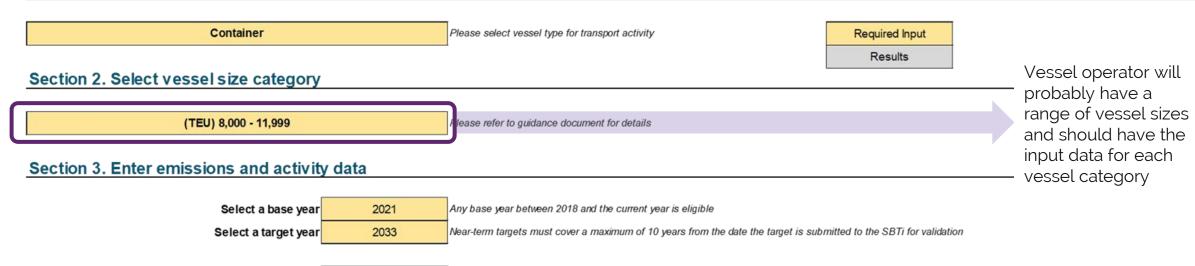
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#### Section 1. Select type of vessel used for transport activity

Well-to-Wake (WTW) emissions in base year

Activity in base year

Expected activity in target year



metric tonnes of CO2 equivalent (tCO2e)

tonne-nautical mile (t.nm)

tonne-nautical mile (t.nm)





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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# Container Please select vessel type for transport activity Required Input Results Just showing two size category (TEU) > 20,000 Please refer to guidance document for details Section 3. Enter emissions and activity data

Select a base year 2021

Any base year between 2018 and the current year is eligible

Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation

Well-to-Wake (WTW) emissions in base year 760,259

Activity in base year 86,393,088,553

Expected activity in target year 120,950,323,974

Any base year between 2018 and the current year is eligible

Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation

tonne-nautical mile (t.nm)

tonne-nautical mile (t.nm)





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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#### **OPTIONAL - Target aggregation sheet**

Step 1: List the vessel type, size, base year emissions (WTW), activity, and target year activity in columns D, E,G, H and J for each different vessel type or size category for which targets are to be calculated.

Step 2: Calculate the targets for each different vessel type or size category using the "Tool" tab.

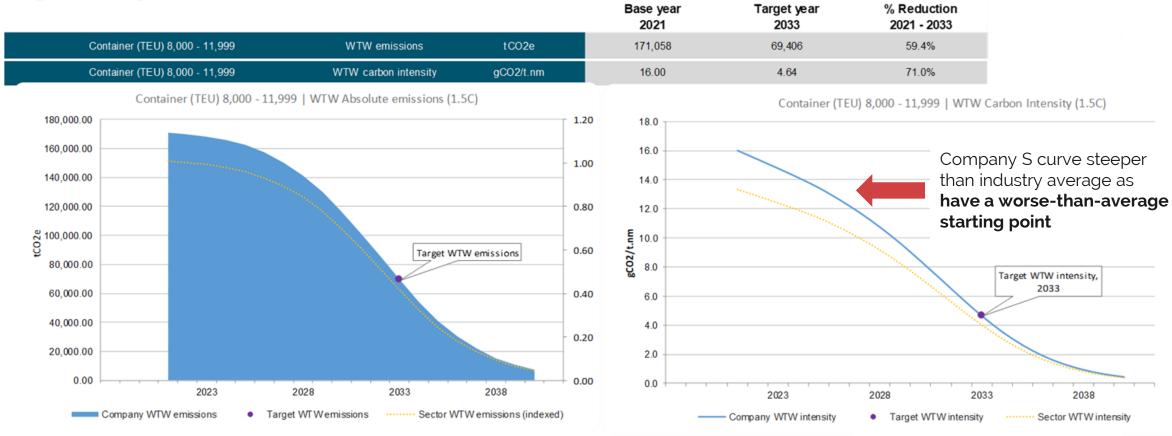
Step 3: hput the results calculated in step 2 into columns L through T of the SBTaggregator tab. The aggregated results and prorated reduction target are shown in at the bottom of row of this table. Please note that only intensity targets with the same activity denominatos (i.e., unit) can be aggregated.

	Emissions and activity data (as entered in tool interface)								
				Target year					
	Vessel type	Vessel size	WTW emissions (tCO2e)	Activity (t.nm or GT.nm)	WTW carbon intensity (gCO2e/t.nm or gCO2e/GT.nm)	Activity (t.nm or GT.nm)			
1	Container	(TEU) >20,000	760,259	86,393,088,553	8.80	120,950,323,974			
2	Container	(TEU) 14,500 - 19,999	449,028	45,356,371,490	9.90	63,498,920,086			
3	Container	(TEU) 12,000 - 14,499	369,654	26,457,883,369	13.97	37,041,036,717			
4	Container	(TEU) 8,000 - 11,999	171,058	10,691,144,708	16.00	14,967,602,592			
5									
20									
		Combined results	1.750.000	168.898.488.121	10.4	236.457.883.369			



#### Section 4. Review target modelling results

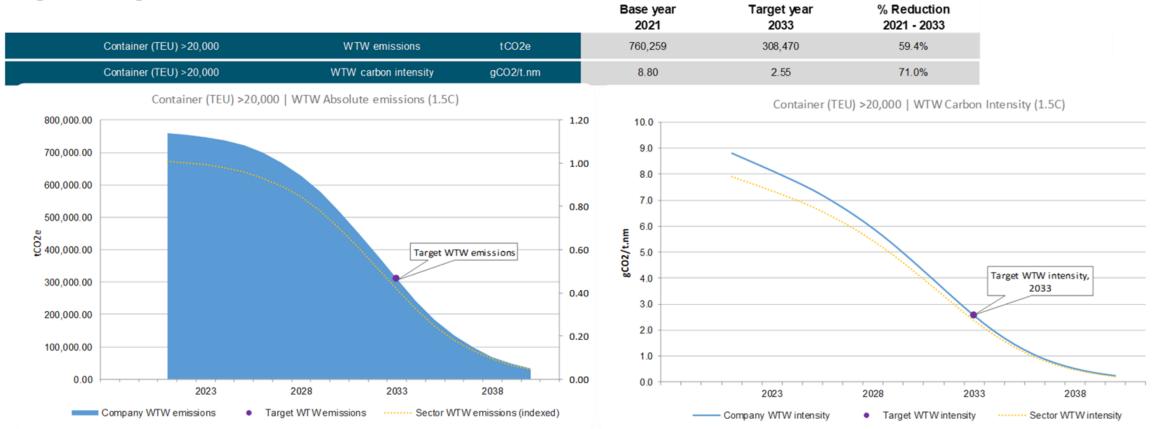
#### Target modelling results - 1.5C





#### Section 4. Review target modelling results

Target modelling results - 1.5C







#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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#### **OPTIONAL - Target aggregation sheet**

Step 1: List the vessel type, size, base year emissions (WTW), activity, and target year activity in columns D, E,G, H and J for each different vessel type or size category for which targets are to be calculated.

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		Base year		Target year	Target year		Target year		
Vessel type	Vessel size	WTW emissions (tCO2e)	Activity (t.nm or GT.nm)	WTW carbon intensity (gCO2e/t.nm or gCO2e/GT.nm)	Activity (t.nm or GT.nm)	WtW emissions (tCO2e)	% reduction	WTW carbon intensity (gCO2e/t.nm or gCO2e/GT.nm)	% reduction
Container	(TEU) >20,000	760,259	86,393,088,553	8.80	120,950,323,974	308,470	59.4%	2.55	71%
Container	(TEU) 14,500 - 19,999	449,028	45,356,371,490	9.90	63,498,920,086	182,190	59.4%	2.87	71%
Container	(TEU) 12,000 - 14,499	369,654	26,457,883,369	13.97	37,041,036,717	149,985	59.4%	4.05	71%
Container	(TEU) 8,000 - 11,999	171,058	10,691,144,708	16.00	14,967,602,592	69,406	59.4%	4.64	71%
	Combined results	1,750,000	168,898,488,121	10.4	236,457,883,369	710,051	59.4%	3.00	71.0%

#### **CONTAINER OPERATOR: GROWTH**





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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#### Section 1. Select type of vessel used for transport activity Container Please select vessel type for transport activity Required Input Results Section 2. Select vessel size category (TEU) > 20,000 Please refer to guidance document for details Section 3. Enter emissions and activity data Select a base year 2021 Any base year between 2018 and the current year is eligible Select a target year Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation 2033 Well-to-Wake (WTW) emissions in base year 760,259 metric tonnes of CO2 equivalent (tCO2e) 86 393 088 553 tonne-nautical mile (t.nm) Activity in base year Based on 10% growth Expected activity in target year 95,032,397,408 projection over 12 years

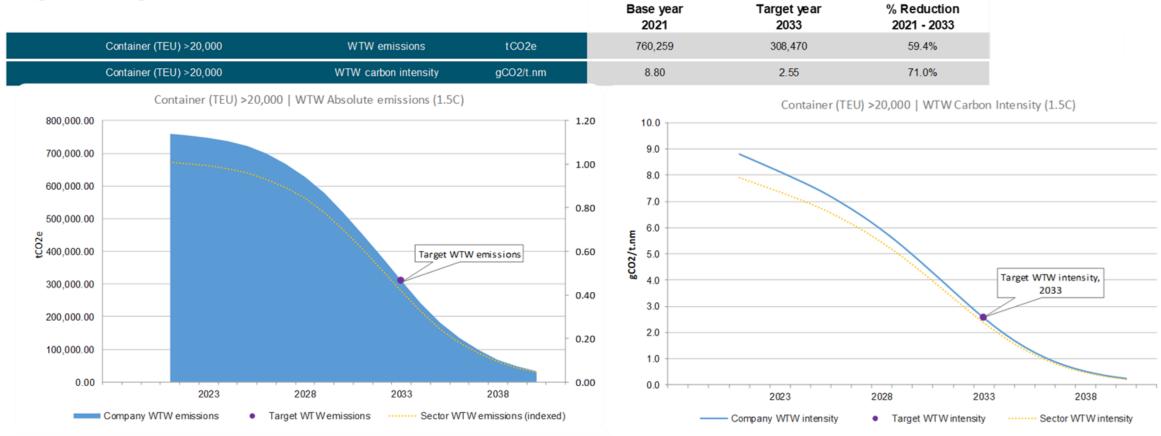
#### **CONTAINER OPERATOR: HIGH GROWTH**





#### Section 4. Review target modelling results

Target modelling results - 1.5C

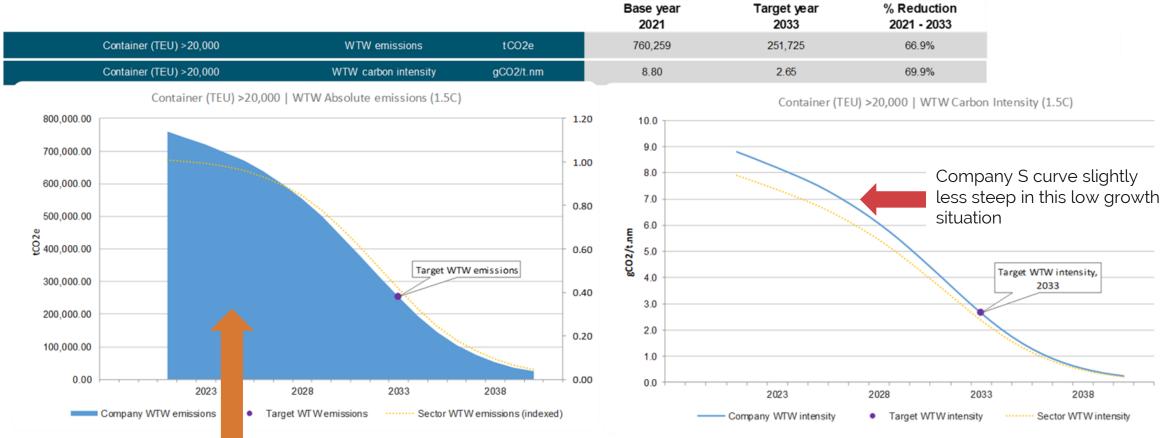


#### **CONTAINER OPERATOR: LOW GROWTH**



#### Section 4. Review target modelling results

#### Target modelling results - 1.5C



Easier to respect company share of GHG budget

#### **CHEMICAL TANKER**





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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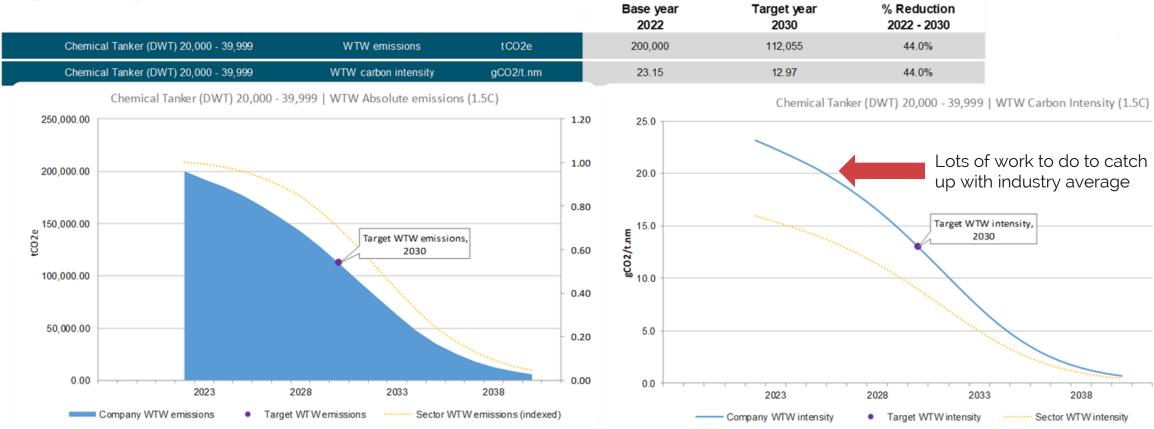
#### Section 1. Select type of vessel used for transport activity **Chemical Tanker** Please select vessel type for transport activity Required Input Results Section 2. Select vessel size category Again, just one vessel (DWT) 20,000 - 39,999 lease refer to guidance document for details size category Section 3. Enter emissions and activity data Select a base year 2022 Any base year between 2018 and the current year is eligible Select a target year 2030 Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation Well-to-Wake (WTW) emissions in base year 200,000 metric tonnes of CO2 equivalent (tCO2e) Activity in base year 8.639.308.855 tonne-nautical mile (t.nm) Based on no growth Expected activity in target year 8,639,308,855 nne-nautical mile (t.nm) over 12 years

#### **CHEMICAL TANKER**



#### Section 4. Review target modelling results

#### Target modelling results - 1.5C



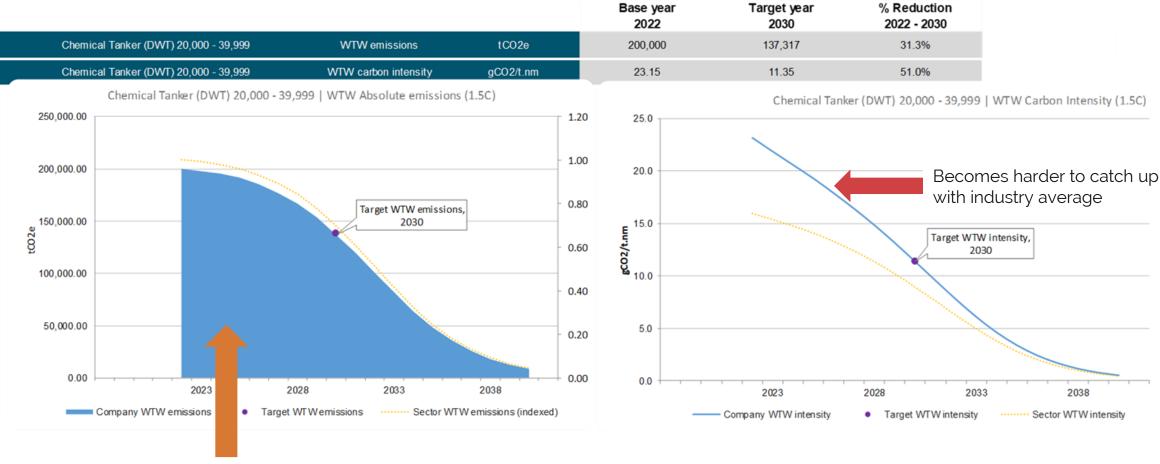
#### **CHEMICAL TANKER: HIGH GROWTH**

## SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

#### Change to 40% growth example

#### Section 4. Review target modelling results

#### Target modelling results - 1.5C



Fills the company share of GHG budget

#### **FERRY OPERATOR**





#### **Sectoral Decarbonization Approach - Maritime Transport Tool**

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#### Section 1. Select type of vessel used for transport activity

(GT) 1,000 - 1,999

Ferry Passenger Only

Please select vessel type for transport activity

Required Input

Results

Section 2. Select vessel size category

Please refer to guidance document for details

#### Section 3. Enter emissions and activity data

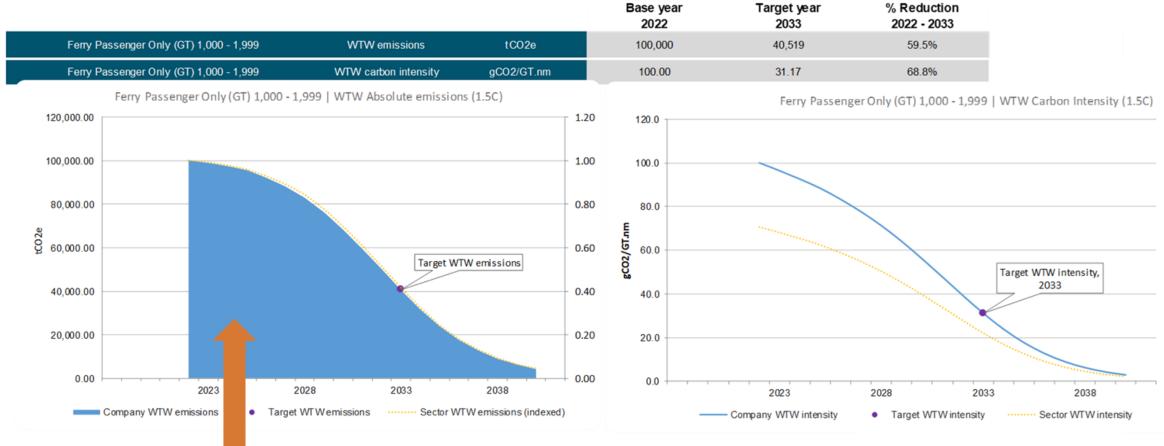
Select a base year 2022 Any base year between 2018 and the current year is eligible Select a target year 2033 Near-term targets must cover a maximum of 10 years from the date the target is submitted to the SBTi for validation Well-to-Wake (WTW) emissions in base year 100,000 metric tonnes of CO2 equivalent (tCO2e) Activity in base year 1.000.000.000 gross tonne nautical miles (GT.nm) Based on 30% growth Expected activity in target year 1,300,000,000 over 12 years

#### **FERRY OPERATOR**



#### Section 4. Review target modelling results

#### Target modelling results - 1.5C



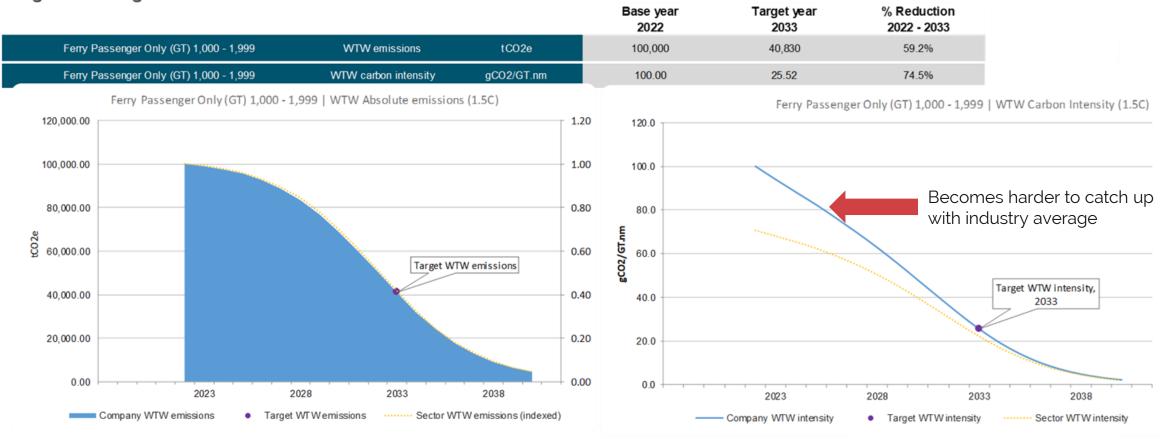
#### **FERRY OPERATOR**

#### Change to 40% growth example



#### Section 4. Review target modelling results

#### Target modelling results - 1.5C







#### **TARGET FORMULATION**

Targets may be expressed either as absolute emissions (tonnes CO<sub>2</sub>e) or on an intensity basis (e.g., gCO<sub>2</sub>e per tonne nautical mile).

Vessel Operator commits to reduce Well-to-Wake GHG emissions 69% per tonne nautical mile from ferry operations by 2033 from a 2021 base year.

- SBTi Bioenergy footnote may be applicable.
- Target recalculation is needed in the event of changes to the company structure or its operations. (e.g,. mergers & acquisitions, updates to growth projections, base year data/assumptions).





**Q&A SESSION** 





**CLOSING** 





#### THE TIME TO ACT IS NOW!

- We are urgently calling on all companies to set science-based net-zero targets.
- Join <u>our mailing list</u> to receive updates.
- Should you have any questions, contact us at <u>info@sciencebasedtargets.org</u>.
- The new guidance and materials, as well as the recording of this webinar can be found on the <u>SBTi maritime webpage</u>.



## THANK YOU

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